

What is claimed is:

1. A double-headed piston type compressor comprising:

a housing having a front housing and a rear housing and forming a  
5 plurality of first cylinder bores, a plurality of second cylinder bores and a suction  
chamber;

a rotary shaft rotatably supported by the housing and having a rotational  
axis, the rotary shaft having an inner chamber along the rotational axis, the inner  
chamber communicating with the suction chamber near a front end of the rear  
10 housing, wherein the first cylinder bores and the second cylinder bores are  
arranged around the rotational axis of the rotary shaft;

a plurality of double-headed pistons connected to the rotary shaft, each of  
the pistons being accommodated in the first cylinder bore and the associated  
second cylinder bore to respectively define a first compression chamber and a  
15 second compression chamber, each of the pistons reciprocating for compressing  
gas in the first compression chambers and the second compression chambers as  
the rotary shaft rotates;

a partition wall located in the inner chamber along the rotational axis of  
the rotary shaft for dividing the inner chamber into a first passage and a second  
20 passage, the first passage interconnecting the suction chamber and a first suction  
communication passage, the second passage interconnecting the suction  
chamber and a second suction communication passage;

a first suction valve mechanism rotatably provided on the rotary shaft near a rear end of the front housing for introducing the gas from the suction chamber to the first compression chambers through the first passage, the first suction valve mechanism including a first rotary valve that has the first suction communication passage for sequentially interconnecting the first passage and the first compression chambers in a suction process as the first suction valve mechanism rotates synchronously with the rotary shaft; and

a second suction valve mechanism rotatably provided on the rotary shaft near the front end of the rear housing for introducing the gas from the suction chamber to the second compression chambers through the second passage, the second valve mechanism including a second rotary valve that has the second suction communication passage for sequentially interconnecting the second passage and the second compression chambers in the suction process as the second suction valve mechanism rotates synchronously with the rotary shaft.

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2. The double-headed piston type compressor according to claim 1, wherein a communication part is a border area located between the second suction communication passage and the second passage, the communication part having a front end, wherein the partition wall has a rear end portion that is located in the rearward of the front end of the communication part.

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3. The double-headed piston type compressor according to claim 2, wherein

the rear end portion protrudes from the inner chamber into the suction chamber.

4. The double-headed piston type compressor according to claim 2, wherein the partition wall has a hollow cylindrical shape, an inside space of the partition wall forming the first passage, an outside space of the partition wall in the inner chamber forming the second passage.

5. The double-headed piston type compressor according to claim 4, wherein a cross-sectional area of the rear end portion is the largest in the partition wall.

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6. The double-headed piston type compressor according to claim 4, wherein the rear end portion has a funnel shape.

7. The double-headed piston type compressor according to claim 4, wherein a cross section of the partition wall is circular.

8. The double-headed piston type compressor according to claim 1, wherein the gas contains lubricating oil for lubricating an inside of the compressor, the housing further comprising a pair of cylinder blocks that define a crank chamber for accommodating a crank mechanism that converts the rotation of the rotary shaft into the reciprocating movement of the piston, a pair of thrust bearings being located on an outer circumferential side of the rotary shaft along the rotational

axis for restricting the rotary shaft to move along the rotational axis, a pair of lubricating holes extending through the rotary shaft for supplying the lubricating oil in the inner chamber to the thrust bearings, the lubricating holes being respectively located at positions corresponding to the thrust bearings, at least one  
5 of the lubricating holes communicating with the second passage.

9. The double-headed piston type compressor according to claim 8, wherein the rotary shaft has an inner surface for defining the inner chamber, a wall surface being provided near at least one of the lubricating holes in the inner chamber for  
10 preventing the lubricating oil from flowing along the inner surface of the rotary shaft.

10. The double-headed piston type compressor according to claim 8, wherein the other of the lubricating holes communicates with the first passage.

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11. The double-headed piston type compressor according to claim 8, wherein a lubricating passage is formed in the housing for interconnecting the second passage and the crank chamber.

20 12. The double-headed piston type compressor according to claim 8, wherein a lubricating passage is formed in the housing for interconnecting the crank chamber and the first passage.

13. The double-headed piston type compressor according to claim 1, wherein the gas contains lubricating oil for lubricating an inside of the compressor, the housing further comprising a pair of cylinder blocks that define a crank chamber  
5 for accommodating a crank mechanism that converts the rotation of the rotary shaft into the reciprocating movement of the piston, a pair of thrust bearings being located on an outer circumferential side of the rotary shaft along the rotational axis for restricting the rotary shaft to move along the rotational axis, a pair of lubricating holes extending through the rotary shaft for supplying the lubricating oil  
10 in the inner chamber to the thrust bearings, the lubricating hole being respectively located at positions corresponding to the thrust bearings, the lubricating holes communicating with the first passage.

14. The double-headed piston type compressor according to claim 13,  
15 wherein the rotary shaft have an inner surface for defining the inner chamber, a wall surface being provided near at least one of the lubricating holes in the inner chamber for preventing the lubricating oil from flowing along the inner surface of the rotary shaft.

20 15. The double-headed piston type compressor according to claim 1, wherein a cross-sectional area of the first passage is larger than that of the second passage.

16. The double-headed piston type compressor according to claim 15, wherein the first passage is longer than the second passage.

5 17. The double-headed piston type compressor according to claim 1, wherein the partition wall has a planar shape.

18. The double-headed piston type compressor according to claim 1, wherein the inner chamber further comprises a large-diameter chamber and a  
10 small-diameter chamber.

19. A double-headed piston type compressor forming a first compression chamber and a second compression chamber for compressing gas, comprising:  
a rotary shaft having an inner chamber that interconnects a suction  
15 chamber and the first and second compression chambers for introducing the gas into the first and second compression chambers; and

a partition wall located in the inner chamber for dividing the inner chamber into a first passage and a second passage, the first passage interconnecting the suction chamber and the first compression chamber, the  
20 second passage interconnecting the suction chamber and the second compression chamber.

20. The double-headed piston type compressor according to claim 19,  
wherein a communication part is located between the second passage and the  
second compression chamber, the communication part having a front end and a  
rear end, the partition wall having an end portion that is located behind the front  
5 end.

21. The double-headed piston type compressor according to claim 20,  
wherein the end portion protrudes from the inner chamber into the suction  
chamber.

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22. The double-headed piston type compressor according to claim 19,  
wherein the partition wall has a cylindrical shape.

23. The double-headed piston type compressor according to claim 19,  
15 wherein the partition wall has a planar shape.